Introduction

The United States Environmental Protection Agency (EPA) promulgated a National Ambient Air Quality Standard (NAAQS) for $PM_{2.5}$ on July 18, 1997, along with a revised standard for ozone. The EPA then published their final rule on $PM_{2.5}$ designations and classifications in the Federal Register on January 5, 2005, and established areas designated as nonattainment, unclassifiable or attainment/classifiable. The EPA again published a final rule on March 10, 2006 (became effective as of April 5, 2006) and established conformity criteria and procedures for transportation projects to determine their impacts on ambient $PM_{2.5}$ levels in nonattainment and maintenance areas. The March 10, 2006 final rule requires a qualitative $PM_{2.5}$ hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule defines the POAQC that requires a $PM_{2.5}$ hot-spot analysis in 40 CFR 93.123(b)(1) as:

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
(ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project was discussed among stakeholders at a Transportation Conformity Working Group (TCWG) meeting on June 27, 2006, pursuant to the interagency consultation requirement of 40 CFR 93.105(c)(1)(i) and as an important tool to collectively evaluate this project. Existing truck traffic data of over 10,000 (as tabulated elsewhere in this document) was discussed at the meeting as a means to communicate current congestion already experienced by truck drivers and motorists as well; and to present the basis of comparison to future traffic growth and delay savings as they relate to potential emissions reduction. Traffic data projected to 2011 and 2030 were presented at the meeting in the Project Summary for Interagency Consultation Form, which indicate that the facility will experience difference in truck traffic for the "Build" scenario in comparison to the "No-Build:" by 2,500 or 11.6% in 2011 and by 1,400 or 4.7% in 2030. The project was considered by the TCWG to be a POAQC due to the increased truck traffic anticipated per 40 CFR 93.123(b)(1)(i).

This $PM_{2.5}$ qualitative hot-spot analysis will be discussed at the TCWG on July 25, 2006. Pending concurrence by the TCWG and approval by the Federal Highway Administration (FHWA), public comments on this $PM_{2.5}$ qualitative hot-spot analysis will be solicited via newspaper media. Any comments by the public, the TCWG, or the FHWA will be appropriately addressed in the final $PM_{2.5}$ qualitative hot-spot analysis.

Project Description and Location

State Route 60 (SR-60), also known as the Pomona Freeway, is a major urban freeway which serves as a commuter corridor that links the Los Angeles Central Business District (LACBD) and communities located in the San Gabriel Valley, and Riverside and San Bernardino Counties. SR-60 is also a port-access truck route identified in the State's Goods Movement Action Plan. It is a designated truck route for interstate trucks.

This project proposes to improve traffic flow by adding one high occupancy vehicle (HOV) lane in each direction along SR-60 between I-605 and Brea Canyon Road. The project is ready to be advertised with a target begin construction in November 2006 and is anticipated to open for traffic in 2010. Traffic data are projected to 2011 to demonstrate fully developed traffic conditions following the opening year.

A Project Report (PR) was prepared and approved by the Department of Transportation (Department) in 2000. An Initial Study/Environmental Assessment (IS/EA) leading to Negative Declaration/Finding of No Significant Impact (ND/FONSI) was also prepared by the Department, approved by the FHWA as delegated by the EPA, and documented on June 26, 2000 (Environmental Reevaluation was completed on February 4, 2005).

This project is identified in the 2004 Regional Transportation Plan (RTP) by the Southern California Association of Governments (SCAG) as well as in the 2004 Federal Transportation Improvement Program (2004 FTIP). This HOV addition project is a Transportation Control Measure (TCM) project (RTIP ID#: LA996137), and its timely implementation is a crucial element in reducing emissions or concentrations of air pollutants from transportation sources. The 2004 RTP and FTIP were found to conform, for $PM_{2.5}$ purposes, on March 30, 2006; see attached conformity determination letter.

$PM_{2.5}$ Hot-Spot Analysis Methodology

This project is located within the South Coast Air Basin (SCAB), which is designated as a federal nonattainment area for $PM_{2.5}$, and based on the general direction by the TCWG, this project is considered as a POAQC. Therefore, a $PM_{2.5}$ qualitative hot-spot analysis needs to be completed in order to meet the conformity requirements in accordance with March 10, 2006 final rule.

A qualitative hot-spot analysis is defined in the 40 CFR 93.101 as an estimation of likely future localized $PM_{2.5}$ pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act (CAA) conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

CAA Section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section

176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

Types of Emissions Considered

In accordance with "Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" (Guidance) developed by the EPA in conjunction with the FHWA in March 2006, this hot-spot analysis will be based only on directly emitted $PM_{2.5}$ emissions. Tailpipe, brake wear, and tire wear $PM_{2.5}$ emissions will be considered in this hot-spot analysis.

Vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. According to the March 10, 2006 final rule, road dust emissions are only to be considered in $PM_{2.5}$ hot-spot analyses if the EPA or the state air agency has made a finding that such emissions are a significant contributor to the $PM_{2.5}$ air quality problem (40 CFR 93.102(b)(3)). The EPA or the California Air Resources Board (CARB) has not yet made such finding of significance; and therefore, the re-entrained $PM_{2.5}$ is not considered in this analysis.

Secondary particles formed through $PM_{2.5}$ precursor emissions from a transportation project take several hours to form in the atmosphere giving emissions time to disperse beyond the immediate project area of concern for localized analyses; therefore, they will not be considered in this hot-spot analysis. Secondary emissions of $PM_{2.5}$ are considered as part of the regional emission analysis prepared for the conforming RTP and FTIP, see attached conformity determination letter.

According to the project schedules, the construction will not last more than 5 years, and construction-related emissions may be considered temporary; therefore, any construction-related $PM_{2.5}$ emissions due to this project will not be included in this hot-spot analysis. This project will comply with the South Coast Air Quality Management District (SCAQMD) Fugitive Dust Rules for any fugitive dusts emitted during the construction of this project. Excavation, transportation, placement, and handling of excavated soils will result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dusts from earthwork operations.

National Ambient Air Quality Standard

Nonattainment and maintenance areas are required to attain and maintain two standards for $PM_{2.5}$ as follows:

- 24-hour standard: 65 $\mu g/m^3$, and
- Annual standard: 15 $\mu g/m^3$.

The current 24-hour standard is based on a 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations' the current annual standard is based on a 3-year average of annual mean $PM_{2.5}$

concentrations. This $PM_{2.5}$ hot-spot analysis will consider both standards.

Climate and Meteorology of the South Coast Air Basin

The project site is located in the cities of Industry and Diamond Bar and unincorporated communities of Hacienda Heights and Rowland Heights, an area within the SCAB that includes Orange, Los Angeles (non-desert portions), Riverside, and San Bernardino counties. The SCAQMD administers air quality regulation in the SCAB.

The terrain and its geologic location determine the SCAB climate. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains (several peaks over 8,000 feet) surround the rest of the SCAB. The region lies in the semi-permanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. A persistent atmospheric "inversion layer" due to the relatively cool marine surface layer, combined with ample sunlight and warm air aloft, contributes to violations of the National Ambient Air Quality Standards (NAAQS) for regional pollutants such as ozone. This climatological pattern is interrupted, rarely, by periods of extremely hot weather, winter storms, and "Santa Ana" down slope wind conditions. The annual average temperature varies little throughout the SCAB, ranging from the low to middle 60's Fahrenheit. With increasing distance from the coast, depending to some extent upon the amount of marine influence, temperature ranges become wider. The majority of annual rainfall in the SCAB occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers.

The climate at the project site resembles that of coastal regions, and the temperature tends to be cooler and milder than the SCAB's average. The 30-year average, from 1971 to 2000, using data obtained from the Western Region Climate Center's Montebello meteorological station (#045790) show a wintertime low of 47.8 degrees Fahrenheit in January. The summertime high is 89.6 degrees Fahrenheit in August. The rainfall season is from November to April with an annual average of 16.75 inches.

Baseline $PM_{2.5}$ Emissions Data and Analysis

Monitored $PM_{2.5}$ concentrations at the Pico Rivera and Lynwood Stations are shown in the table below (two closest stations monitoring $PM_{2.5}$). These data show that both stations meet the federal 24-hour $PM_{2.5}$ standard (65 $\mu g/m^3$) over the last three years. Furthermore, the data indicate a constant decline in the 24-hour $PM_{2.5}$ concentrations monitored at both stations. All monitored annual average $PM_{2.5}$ emissions exceed the NAAQS for annual average $PM_{2.5}$ emissions at both stations. However, the monitored data exhibit a similar and constant decline in the annual average $PM_{2.5}$ concentrations at both the Pico Rivera Station and the Lynwood Station for the last available 3 years.

	2001	2002	2003	2004	2005

	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
Pico Rivera Station					
3-year average 98th percentile	NA	65	58	53	NA
Exceeds federal 24-hour standard?	NA	No	No	No	NA
Annual Average	25	24.4	23.3	21.5	NA
Exceeds federal annual average standard?	Yes	Yes	Yes	Yes	NA
Lynwood Station					
3-year average 98th percentile	61	60	57	53	51
Exceeds federal 24-hour standard?	No	No	No	No	No
Annual Average	23.9	23.6	22.7	20.7	18.7
Exceeds federal annual average standard?	Yes	Yes	Yes	Yes	Yes

*Data from the California Air Resources Board (ARB) at http://www.arb.ca.gov.
NA = Not Available

While the current levels of $PM_{2.5}$ in the project vicinity are below the federal 24-hour standard, constant declines exhibited in the data from both stations indicate that the levels will further decrease in the future. Based on available data, both 24-hour and annual average concentrations are projected using a straight-line projection fitted to the current trends and annual averages $PM_{2.5}$ concentrations are estimated to be 11.96 and 9.16 $\mu g/m^3$ in 2011 at the Pico Rivera and Lynwood Stations, respectively. These projected annual averages correlate to reductions of approximately 43% at Pico Rivera Station and 49% at Lynwood Station by 2011. In the same fashion, the 24-hour $PM_{2.5}$ concentration is projected at 34.8 $\mu g/m^3$ at the Lynwood Station in 2011. The 24-hour $PM_{2.5}$ concentration for the Pico Rivera Station is not estimated due to limited number of data points.

When projected to 2030, the 24-hour and annual average $PM_{2.5}$ concentrations experienced at both stations are significantly lower than the current levels. Based on the historical 24-hour and annual average $PM_{2.5}$ concentrations and their projections, constant decrease is anticipated in the future. This trend is consistent with the CARB's plan to achieve attainment for $PM_{2.5}$ by 2010. The Initial Attainment State Implementation Plan (SIP) submittal to the EPA is anticipated by April 5, 2008.

Transportation and Traffic Conditions

Existing Conditions
Existing average daily traffic volumes, truck percentage, and average daily truck volumes for SR-60 within the project limits are tabulated below.

	AADT	% of Trucks (3 or more Axles)	Truck AADT (3 or more Axles)
SR-60 in 2004	263,000	5.5	14,512

The table indicates that the facility currently experiences more than 10,000 trucks AADT. In terms of traffic congestion experienced by motorists, the PR prepared in 2000 described the facility as operating at the LOS of F0. LOS of F0 indicates that typical motorists would experience traffic congestion for more than 15 minutes but less than 1 hour during peak hours.

Future Conditions
Anticipated traffic data are tabulated below for years 2011 and 2030.

	Total AADT, Veh.	Trucks (3 or more Axles)		Delay Savings in Hrs (Btwn Build and No-Build)
		Percentage, %	AADT, Veh.	
2011 "No-Build"	300,500	7.2	21,500	5,100
2011 "Build"	309,000	7.8	24,000	
2030 "No-Build"	329,000	9.0	29,600	6,200
2030 "Build"	354,800	8.7	31,000	

When compared to the "No-Build" scenario, the "Build" increases truck traffic by 11.6% (2,500 trucks) in 2011 and by 4.7% (1,400 trucks) in the horizon year (2030). This increase of 11.6% over the "No-Build" in 2011 is likely due to reduced congestion in the mixed flow lanes, caused by the movement of HOVs to their new dedicated lanes, thereby allowing additional mixed flow and truck traffic to occupy the facility**.** It is anticipated that portions of truck traffic will be drawn and diverted from adjacent arterials upon the opening of the facility. This effect, however, diminishes by 2030 when an increase over the "No-Build" is anticipated at 4.7%. The increased truck volume is projected based on expected truck percentages of mixed-flow traffic, is incidental to the overall project, and is not expected to prevent the area from achieving or maintaining the $PM_{2.5}$ NAAQS as projected above.

Although the "Build" truck traffic projections show an increase of 11.6% (greater than 10%) over the "No-Build" in 2011, the project does not provide additional truck capacity as a design purpose. The project adds HOV lanes, which in the Los Angeles area accommodate primarily gasoline-fueled light duty and alternative-fueled (typically CNG or LNG) transit vehicles. State and local (South Coast Air Quality Management District) transit fleet rules essentially prohibit the acquisition of diesel-powered transit vehicles for use in the South Coast air basin.

The table also illustrates that the motorists will benefit from the "Build" scenario in terms of delay savings. Based on the comparison of the "Build" scenario to the "No-Build," it is anticipated that the approximately 5,100 and 6,200 hours of delay will be saved or eliminated as experienced by the motorists in 2011 and 2030, respectively. This saving in traffic delay typically translates to the increase in travel speed. Furthermore, the delay savings with the "Build" scenario correlate to reduced stop and go operation (compared to "No-Build"), which has been shown in research studies and regional emission modeling to reduce vehicle emissions including heavy-duty vehicle emissions.

Conclusion

Transportation conformity is required under CAA section 176(c) to ensure that federally supported highway and transit project activities are consistent with the purpose of the state air quality implementation plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. As required by the March 10, 2006 final rule, this qualitative $PM_{2.5}$ hot-spot analysis demonstrates that this project meets the CAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

Historical meteorological and climatic data support that the regional and local meteorological and climatic conditions have been relatively consistent within the last 30 years and likely consistency is anticipated until the horizon year of 2030. In addition, no significant changes to the current general terrain and geographic locations of the project in relation to the coastal SCAB areas, are anticipated.

Monitoring of $PM_{2.5}$ emissions have only recently initiated and do not have a long trail of monitored data available; however, based on the recent data at two closest $PM_{2.5}$ emissions monitoring stations, there is a declining trend of background $PM_{2.5}$ concentrations within the project area. As discussed above, annual average $PM_{2.5}$ concentrations in 2011 are projected at as low as 43% and 49% of their last available monitoring data at the Pico Rivera and Lynwood Stations, respectively.

The monitoring data indicate that the NAAQS for the 24-hour standard has not been exceeded during the last three years of available data, and the 24-hour $PM_{2.5}$ concentrations are likely to continue to meet the NAAQS. Although the monitored annual average $PM_{2.5}$ concentrations exceeded the NAAQS for the last three years of available monitoring, there is a constant trend of declining annual average concentrations similar to the trend in 24-hour data. Based on the current

trend, the annual average $PM_{2.5}$ concentrations are likely to be monitored at significantly lower level than the NAAQS by years 2011 or 2030.

Total and truck traffic data are projected to increase by 2011 and 2030. In comparison to the "No-Build," the "Build" scenario is anticipated to increase the truck traffic by 2,500 or 11.6% in 2011 when portions of truck traffic will be drawn and diverted from adjacent arterials upon the opening of the facility. This effect, however, diminishes by 2030 when an increase over the "No-Build" is anticipated only at 1,400 trucks or 4.7%. It should be noted that, despite such increases in the truck traffic (2,500 trucks in 2011 and 1,400 in 2030), the facility would still achieve delay savings of 5,100 and 6,200 hours by 2011 and 2030, respectively. The anticipated decrease in projected truck traffic from 11.6% to 4.7%, coupled with the increase in delay savings that would result in reduced stop-and-go operation, affirm that the project is anticipated to reduce traffic slowdowns, and therefore, reduce $PM_{2.5}$ emissions per mile.

Federal regulations and the State's Diesel Risk Reduction Plan will require future diesel vehicles to have substantially cleaner engines and to use fuels with lower sulfur contents. Thus, even though the project will have an increase in diesel truck traffic in all future analysis years, the increase will be more than offset by the larger decrease in per-vehicle $PM_{2.5}$ emissions. Therefore, the project will not cause higher $PM_{2.5}$ emissions or a $PM_{2.5}$ hot-spot.

The historical meteorological and climatic data, monitored $PM_{2.5}$ emissions data and their declining trend, current and projected traffic data, and the Federal regulations and the State's Plan, support the assertion that the project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. Activities of this project should, therefore, be considered that they are consistent with the purpose of the SIP and it should be determined that this project conforms to the requirements of the CAA.

Attachment

$PM_{2.5}$ Regional Conformity Approval Letter

U.S.**DEPARTMENT OF TRANSPORTATION**
FEDERAL HIGHWAY ADMINISTRATION
CALIFORNIA DIVISION
650 Capitol Mall, Suite 4-100
Sacramento, CA. 95814

March 30, 2006

IN REPLY REFER TO
HDA-CA
Document # S48861

Mr. Mark Pisano, Executive Officer
Southern California Association of Governments
818 West 7th Street, 12th Floor
Los Angeles, CA 90017

Dear Mr. Pisano:

SUBJECT: Fine Particulate ($PM_{2.5}$) Standard Conformity Determination for SCAG's 2004 Regional Transportation Plan (*Destination 2030)* and 2004 Regional Transportation Improvement Program as Amended

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have completed our review of the fine particulate ($PM_{2.5}$) conformity determination for the Southern California Association of Governments' (SCAG's) 2004 Regional Transportation Plan (RTP), *Destination 2030* and the 2004 Regional Transportation Improvement Program (RTIP) as amended. Effective April 5, 2005, the Environmental Protection Agency (EPA) designated areas as nonattainment for the new $PM_{2.5}$ standard. SCAG performed the conformity determination to demonstrate conformity of the RTP and RTIP for the new standard.

The SCAG made the conformity determination for the 2004 RTP and 2004 RTIP on February 2, 2006 (Resolution #06-471-2). The conformity analysis submitted to the FHWA/FTA by the SCAG indicates that all air quality conformity requirements have been met, including those for the $PM_{2.5}$ standard. Based on our review, we find that the 2004 RTP and 2004 RTIP conform to the applicable state implementation plan (SIP) in accordance with the provisions of 40 CFR Parts 51 and 93. In accordance with the July 15, 2004, *Memorandum of Understanding (MOU) between the Federal Highway Administration, California Division and the Federal Transit Administration, Region IX*, the FTA has concurred with this conformity determination. Additionally, this approval was made after consultation with the EPA, Region 9 office, pursuant to the Transportation Conformity Rule.

Pursuant to 40 CFR 93.102(d), this conformity determination fulfills the requirement that areas designated nonattainment for the $PM_{2.5}$ standard completes a conformity determination by April 5, 2006. The FHWA and the FTA originally found the RTP and 2004 RTIP to conform to the applicable SIP on June 7, 2004, and October 4, 2004, respectively. This conformity determination does not re-start the three-year clock for the RTP or RTIP (40 CFR 93.104(b)(3) and (c)(3)) since SCAG relied on previous regional emissions analyses for portions of the conformity determination.

In accordance with the above MOU, this letter constitutes the FHWA and the FTA's joint air quality conformity determination for the SCAG's 2004 RTP and 2004 RTIP. If you have any questions pertaining to this conformity determination, please contact Jean Mazur, of the FHWA, at (916) 498-5732.

Sincerely,

/s/ K. Sue Kiser

For
Gene K. Fong
Division Administrator

cc: (e-mail)
Sylvia Patsouras, SCAG
Jonathon Nadler, SCAG
Jessica Kirschner, SCAG
Sharon Scherzinger, Caltrans
Rachel Falsetti, Caltrans
Mike Brady, Caltrans
Dennis Wade, CARB
Karina O'Connor, EPA
Ted Matley, FTA
S.Grace Balmir, FHWA

Jmazur/jm